

NJDOT Bureau of Research  
QUARTERLY PROGRESS REPORT  
**Date of report: August 29, 2008**  
**Reporting period: July 1 to August 29, 2008**

Project Title:	Design and Evaluation of Effective Crosswalk Illumination		
RFP NUMBER: 2008-06	NJDOT RESEARCH PROJECT MANAGER: Nazhat Aboobaker		
TASK ORDER NUMBER: RFCUNY	PRINCIPAL INVESTIGATOR: John Bullough, Mark Rea		
Project Starting Date: April 1, 2008 Project Ending Date: March 31, 2009	Period Starting Date: July 1, 2008 Period Ending Date: August 29, 2008		

Tasks/Activities	% of Total	% of Task this period	% of Task To date	% of Total Complete
1. Review literature	10%	0%	100%	10%
2. Develop concepts	10%	30%	100%	10%
3. Test and refine concepts	15%	60%	80%	12%
4. Develop mock-up configurations	10%	30%	30%	3%
5. Identify candidate for field deployment	20%	15%	15%	3%
6. Short-term field evaluation	20%	10%	10%	2%
7. Implementation plan	5%	0%	0%	0%
8. Final report	10%	0%	0%	0%
<b>TOTAL</b>	<b>100%</b>			<b>40%</b>

**1. Project Objective:** *(to be completed)*

To evaluate a series of lighting concepts for crosswalk illumination, culminating in a field demonstration of a promising system.

**2. Proposed activities for this quarter by task and anticipated percentage complete by end of quarter:** *(to be completed)*

The project team has completed Task 2, conducting photometric and visual performance evaluations of several lighting configurations including but not limited to those recommended by NJDOT engineering staff. Part of Task 3 to test and refine concepts has been completed, including determination of initial, operation and maintenance costs of the more promising techniques. Very preliminary parts of Tasks 4, 5 and 6 have begun through correspondence with NJDOT engineering staff in order to identify possible locations for the short-term field evaluation in NJ.

**3. List of deliverables provided in this quarter by task (product date):** *(to be completed)*

A summary of lighting concepts, the resulting visual performance evaluations, and the economic evaluations for initial promising candidates will be provided to NJDOT during the quarterly progress meeting in September.

**4. Progress on Implementation and Training Activities:** *(to be completed)*

This will be addressed in Task 7 of the project.

**5. Problems/Proposed Solutions:** *(to be completed)*

None.

**BUDGET EXPENDED AND REMAINING**

Total Project Budget (NJDOT Share Only)	\$68,129
<b>Modified Contract Amount:</b>	\$68,129
Total Project Expenditure to date	~\$15,000 (approx.)
% of Total Project Budget Expended	~25% (approx.)

NJDOT Bureau of Research  
**QUARTERLY PROGRESS REPORT**  
**Date of report: September 2, 2008**  
**Reporting period: July 1 to September 30, 2008**

Project Title:	Portable Work Zone Barrier-Balsi Beam		
RFP NUMBER: 2007-14	NJDOT RESEARCH PROJECT MANAGER: Edward Kondrath		
TASK ORDER NUMBER: RFCUNY 29 – Mod.#1	PRINCIPAL INVESTIGATOR: Robert Paaswell		
Project Starting Date: 1/1/ 2007 Project Ending Date: 12/31/2008	Period Starting Date: July 1, 2008 Period Ending Date: September 30, 2008		

<b>Tasks for Phase I – Fabrication</b>	<b>% of Total</b>	<b>% of Task this quarter</b>	<b>% of Task to date</b>	<b>% of Total Complete</b>
Task 1: Advisory Committee meetings and presentations	30%	0%	100%	30%
Task 2: Licensing, Cost Estimates	50%	0%	50%	25%
Task 3: Documentation	20%	0%	60%	12%
<b>TOTAL</b>	100%			67%

**Project Objective:**

The objectives of this project are the fabrication, implementation, and evaluation of the Caltrans Balsi Beam portable protection device for the safety of New Jersey Department of Transportation workers in short duration highway work operations. This two-phase project will build on the results of the previous study, “Identification of Traffic Control Devices for Mobile and Short Duration Work Operations,” which identified the potential for the Balsi Beam to protect exposed highway workers along the shoulder and in the traveled lanes of high traffic, high speed areas.

**Project Abstract:**

This work will focus on the fabrication and implementation of the Balsi Beam which is a truck mounted, moveable, expandable beam that provides positive work zone protection comparable to a fixed concrete barrier. It is specifically intended to enhance worker safety when carrying out shoulder repair in work zones adjacent to guardrails, inlet repair, bridge rails, bridge deck repair, sound walls and other work where workers are normally exposed to traffic or behind cones in limited work areas for several hours. Usually the shadow vehicle or the truck mounted attenuator provides protection from rear end collisions; the new device provides protection from adjacent lane traffic.

The Balsi Beam provides positive, steel beam protection system for exposed workers who normally work behind temporary cones and barrels in limited work areas. The TL-3 crash test at the Texas Transportation Institute shows that the beam does not deflect as

conventional unpinned portable concrete median barrier in such crashes. The Balsi Beam is practically applicable to bridge and concrete repair projects where workers are concentrated in small areas over a one day period or less.

The Balsi Beam was developed by the California Department of Transportation, Federal Highway Administration and the Texas Transportation Institute under the Strategic Highway Research Program. The device was implemented by Caltrans on Interstate Route 80 in Northern California. The Caltrans implementation identified the ease of transporting the beam to the job site, ease of set up and ability of workers to work in the protected areas. Caltrans is able to use small front end loaders, compressors and other such equipment in the protected area. Workers like the protection of a positive barrier between them and high speed traffic.

1. Progress this quarter by task:

- No significant progress has been accomplished during this quarter. The licensing Agreement is still under review at NJDOT. The research team has contacted the North Texas Tollway Authority (NTTA) which has now being successful executing the licensing agreement for the Balsi Beam with Caltrans. The copy of the NTTA agreement has been sent to NJDOT.

2. Proposed activities for next quarter (October 1, 2008 – December 31, 2008) by task, and anticipated percentage complete by end of quarter.

- After the signature of the licensing agreement, the research team will work with Caltrans to receive all the drawings and will submit them to manufacturers for costs estimates. A document of costs estimates will be prepared for NJDOT.

3. List of deliverables provided in this quarter by task (product date)

Licensing Agreement from CALTRANS.

4. Progress on Implementation and Training Activities  
NA

5. Problems/Proposed Solutions  
NA

**BUDGET EXPENDED AND REMAINING**

Year 1 Total Project Budget	\$23,170
<b>Modified Contract Amount:</b>	<b>\$43,120</b>
Total Project Expenditure to date	\$23,170
% of Total Project Budget Expended	54%

## NARRATIVE PROGRESS REPORT

Date prepared: 8/29/08

### PROJECT INFORMATION:

Project Title:	Transit-Oriented Development Benefits of New Transit Service: RiverLine	
RFP NUMBER: 2007-04	NJDOT RESEARCH PROJECT MANAGER: Edward Kondrath	
TASK ORDER NUMBER: RFCUNY 28	PRINCIPAL INVESTIGATOR: Daniel Chatman	
Project Starting Date: 1/1/ 2007 Project Ending Date: 6/30/2009	Period Starting Date: June 1, 2008 Period Ending Date: September 30, 2008	

### PERCENT OF WORK COMPLETED:

Activity	% of Task Complete
Task 1.1 – Review literature and data	100%
Task 1.2 – Develop/revised detailed work plan	100%
Task 2.1 – Assemble secondary data	100%
Task 2.2 – Design original data collection	100%
Task 2.3 – Land development benefits	92%
Task 2.4 – Economic development benefits	35%
Task 2.5 – Travel and smart growth benefits	55%
Task 2.6 – Prepare/submit reports	0%

**UTRC Concurrence: Camille Kamga**  
Name

**Associate Director,**  
Title

**9/2/2008**  
Date

## **PROGRESS BY TASK FOR THIS REPORTING PERIOD**

The following activities were undertaken by the research team during this reporting period. The percentage of each task that has been completed is noted in parentheses.

- Phase II, Task 1 (100%)
  - Additional data collection
- Phase II, Task 2 (100%):
  - Pretest firm and household surveys
  - Revised firm and household survey instruments
- Phase II, Task 3: Land development benefits (92%)
  - Complete narrative: RL development (100%)
  - Assemble data for permit analysis (100%)
  - Describe ridership and service characteristics; compare travel accessibility in region pre/post opening (100%)
  - Describe south New Jersey land use, travel and employment context (50%)
  - Model land values (50%)
- Phase II, Task 4: Economic development benefits (35%)
  - Convert firm survey to paper version (100%)
  - Field firm (paper) survey (50%)
- Phase II, Task 5: Travel and smart growth benefits (55%)
  - Field household survey (100%)
  - Analyze travel impacts (40%)
- Other:
  - Held 2 team progress meetings between Rutgers staff
  - Coordinated firm and household survey design and administration between VTC & BCSR/SRBI

## **ANTICIPATED ACTIVITIES NEXT PERIOD BY TASK**

We anticipate undertaking the following activities during the 4<sup>th</sup> quarter (October 1, 2008 to December 31, 2008) by task. The anticipated percentage of each task to be complete by the end of the quarter is noted in parentheses.

- Phase II, Task 3: Land development benefits (100%)
  - Describe south New Jersey land use, travel and employment context (100%)
  - Model property values (100%)
- Phase II, Task 4: Economic development benefits (60%)
  - Field firm survey (100%)
- Phase II, Task 5: Travel time and smart growth impacts (75%)
  - Map & describe changes in permits (100%)
  - Analyze travel impacts—using survey data (60%)

**LIST OF DELIVERABLES PROVIDED IN THIS QUARTER BY TASK**

None

**PROGRESS ON IMPLEMENTATION AND TRAINING ACTIVITIES**

None

**PROBLEMS/PROPOSED SOLUTIONS**

The firm survey has been reconfigured to a paper survey format. Invitations to the survey were administered in early September. Past experience indicates that follow up to the survey, in the form of in-person visits, is likely to be needed. This work will be conducted in the late fall. Survey data should be available by the end of the year. Analysis will follow in early 2009.

Transit-Oriented Development Benefits of New Transit Service: RiverLine

Task Order No. RFCUNY 28

BUDGET SYNOPSIS

Reporting Period: 7/1/08 to 9/30/08

Task No.	Task Description	% of TPC	Cost of Task			Current Billing Period				Previously Billed				Cumulative Expenses			
			NJDOT Share	UTRC Match	Total	% Compl	NJDOT Share	UTRC Match	Total	% Compl	NJDOT Share	UTRC Match	Total	% Compl	NJDOT Share	UTRC Match	Total
1.1	Review literature and data	7%	17,225	6,291	23,516	0%	0	0	0	100%	17,225	6,291	23,516	100%	17,225	6,291	23,516
1.2	Develop/revise detailed work plan	10%	23,369	8,534	31,903	0%	0	0	0	100%	23,369	8,534	31,903	100%	23,369	8,534	31,903
2.1	Assemble secondary data	4%	9,320	3,403	12,723	0%	0	0	0	100%	9,320	3,403	12,723	100%	9,320	3,403	12,723
2.2	Design original data collection	6%	13,358	4,878	18,236	0%	0	0	0	100%	13,358	4,878	18,236	100%	13,358	4,878	18,236
2.3	Land development benefits	14%	32,499	11,868	44,367	17%	5,525	2,018	7,542	75%	24,374	8,901	33,275	92%	29,899	10,919	40,818
2.4	Economic development benefits	21%	49,442	18,055	67,497	15%	7,416	2,708	10,125	20%	9,888	3,611	13,499	35%	17,305	6,319	23,624
2.5	Travel and smart growth benefits	29%	67,021	24,476	91,497	25%	16,755	6,119	22,874	30%	20,106	7,343	27,449	55%	36,862	13,462	50,323
2.6	Prepare/submit reports	9%	19,770	7,224	26,994	0%	0	0	0	0%	0	0	0	0%	0	0	0
	TOTAL	100%	232,004	84,729	316,733	13%	29,696	10,845	40,541	51%	117,641	42,961	160,602	64%	147,337	53,806	201,143

**NOTE:** The amounts reported above are estimates for reference purposes only. For a more accurate accounting of project expenditures, please refer to the official invoice for this project issued by Rutgers University Division of Grant and Contract Accounting.

UTRC Concurrence: Camille Kamga

Associate Director

9/2/08

Name

Title

Date



## QUARTERLY PROGRESS REPORT

Project Title:	<b>Seismic Design Considerations</b>		
RFP NUMBER: <b>2008-09</b>	NJDOT RESEARCH PROJECT MANAGER: <b>W. Lad Szalaj</b>		
TASK ORDER NUMBER/Study Number: <b>Task Order #</b>	PRINCIPAL INVESTIGATOR: <b>Anil K. Agrawal</b>		
Period Starting: <b>January 1, 2008</b>	Period Ending: <b>September 30, 2008</b>		
Ending Date: <b>December 31, 20010</b>			

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
<i><b>Phase I – Literature Search</b></i>	<b>5</b>	<b>100</b>	<b>100</b>	<b>5</b>
<b>Task 1:</b> Development of Seismic Design Recommendations for New Bridges	20	10	10	2
<b>Task 2:</b> Development of Examples Illustrating Design Recommendations.	10			
<b>Task 3:</b> Importance Classification of New Jersey Bridges	5	50	50	2.5
<b>Task 4:</b> Development of Design Recommendations for Seismic Retrofit of Existing Bridges	20	20	20	4
<b>Task 5:</b> Selection of Acceptable and Cost-Effective Retrofit Options	10			
<b>Task 6:</b> Development of Examples Illustrating Seismic Retrofit of Bridges.	10			
<b>Task 7:</b> Seismic Design Resources/Tools for Conditions Specific to New Jersey Bridges.	10			
<b>Task 8:</b> Final Report Documenting the Finding of the Research and a CD-ROM containing all design tools/resources	10			
<b>Implementation</b>				
<b>TOTAL</b>	<b>100%</b>	<b>180</b>	<b>180%</b>	<b>13.5%</b>

1. Progress this quarter by task: **Contract has been signed in July, 2008. The project team is working at full pace to recover lost time. We intend to submit the final report on the schedule. However, we may request extension for the time lost during contract period.**

4. Progress on Implementation and Training Activities: **None**

5. Problems/Proposed Solutions: **None**

6. Budget Summary: **Not available yet.**

Total Project Budget(# of years)	<b><i>NJDOT: \$400,000 UTRC: \$50,000 CCNY: \$0 No. of Years: 2</i></b>
Total Project Expenditure to date	<b>\$2,585</b>
% of Total Project Budget Expended	<b>0.5%</b>
Task Order Number/Study Number:	<b>Task Order #</b>
Current Task Order Budget (# of years)	
Actual Expenditure to date against current task order	
% of current task order budget expended	%

NJDOT Bureau of Research  
**QUARTERLY PROGRESS REPORT**  
**Date of report: August 20, 2008**  
**Reporting period: July 1 to September 30, 2008**

Project Title:	Technology Transfer Year 20		
RFP NUMBER: NA	NJDOT RESEARCH PROJECT MANAGER: Wladislau (Lad) Szalaj		
TASK ORDER NUMBER: RFCUNY 35	PRINCIPAL INVESTIGATOR: Robert Paaswell		
Project Starting Date: 1/1/ 2008 Project Ending Date: 12/31/2008	Period Starting Date: July 1, 2008 Period Ending Date: Sept. 30, 2008		

Activities	% of Total	% of Task this period	% of Task to date	% of Total Complete
In House Lecture Series	30%	25%	30%	9%
Visiting Scholar Seminar Series	20%	25%	75%	15%
UTRC Research Newsletter	20%	20%	60%	12%
Other - General Activities/ Technical Editor	30%	30%	30%	9%
<b>TOTAL</b>	100%			45%

**Project Objective:**

The objectives of the Technology Transfer program are:

- To increase the awareness and level of information concerning transportation issues facing US DOT Region 2 for all within the region;
- To improve the knowledge base and approach to problem solving of the region's transportation workforce, from those operating the systems to those at the most senior levels of managing the system; by doing so, to improve the overall professional capability of the transportation workforce;
- To stimulate discussion and debate concerning the integration of new technologies into our culture, our work and our transportation systems;
- To provide the more traditional but extremely important job of dissemination of research and project reports, studies, analysis and use of tools to the education, research and practicing community;
- To provide unbiased information and testimony to decision-makers concerning regional transportation issues consistent with the UTRC theme.

The goal of the Technology Transfer Program for the New Jersey Department of Transportation is to provide research results to potential users in a form that can be directly implemented, utilized and applied to transportation operations.

1. Progress this period by activities:

- Visiting Scholar Seminars: UTRC will host one visiting scholar seminars during this period. The seminar will be held on September 26, 2008 at Baruch College. The seminar featured Georges Amar and Dominique Laousse of RATP, France. They will discuss the topic of “THE PARADIGM OF MOBILITY: A Radical Change in Urban Transport to Challenge Sustainability.”
- UTRC Research News: One newsletter will be distributed during this period: Fall 2008 Newsletter.
- Other - General Activities: UTRC has distributed the final reports for recently completed projects to national transportation libraries. The UTRC website is under constant improvement. UTRC is continuing to develop online system for submission and review of proposals. UTRC staff and P.I. have participated at many conferences and technical meetings. UTRC’s members have been cited on many news articles and have been invited by local TV channels to provide expertise testimonies on current transportation issues.
- In House Lecture Series: UTRC and NJDOT has selected topics and scheduled presentation for this program. The first presentation will be on September 24, 2008 by Dr. Jean Paul Rodrigue of Hofstra University on Transportation and Oil Prices: From Modal Shift to Supply Chain Propagation.

2. Proposed activities for 4th quarter (October 1, 2008 - December 31, 2008) by task, and anticipated percentage complete by end of quarter.

- In House Lecture Series: 5 other presentations will be presented during this quarter:
  1. October 1st - Self cleaning and de-polluting coatings and possibilities for transportation structures - Dr. Balaguru, Rutgers
  2. October 29th - Identification of the Source of Rutting within the Flexible Pavement Layer System - Dr. Mehta, Rowan
  3. November 5th - Shifting your Paradigm--Thinking for 2010 and Beyond - Dr. Brodzinski, CCNY
  4. November 13th - Using Configuration Management to Control Complex Transportation Projects - Dr. Williams, Rutgers
  5. November 20th - Multi-hazard issues in design and repair of highway bridges - Dr. Agrawal, CCNY
- Visiting Scholar Seminars: UTRC will host a visiting scholar seminar on November 21 at New York City. The seminar will feature Robert Puentes, of the Brookings Institution.
- UTRC Research News: A newsletter will be distributed on the next quarter

- Technical Editor: UTRC is looking for opportunities to review more reports
- Other - General Activities: UTRC will be active in the preparation of the NJDOT Research Showcase to be held on October 16, 2008. UTRC will continue preparation of the annual reporting documents for submission to USDOT. The UTRC website will still be under improvement. UTRC expect to continue testing of the online system for submission and review of proposals. UTRC staff and P.I. will continue to participate at conferences and technical meetings. UTRC's P.I.s will continue to contribute in news articles.

3. List of deliverables provided in this quarter by task (product date)

4. Progress on Implementation and Training Activities  
NA

5. Problems/Proposed Solutions  
NA

#### **BUDGET EXPENDED AND REMAINING**

Total Project Budget	\$50,000
<b>Modified Contract Amount:</b>	
Total Project Expenditure to date	\$22,500
% of Total Project Budget Expended	45%

## QUARTERLY PROGRESS REPORT

Project Title:	<b>Water Quality Mitigation and Banking</b>		
RFP NUMBER: <b>2007-11</b>	NJDOT RESEARCH PROJECT MANAGER: <b>Nazhat Aboobaker</b>		
TASK ORDER NUMBER/Study Number: <b>Task Order #30</b>	PRINCIPAL INVESTIGATOR: <b>Anil K. Agrawal</b>		
Period Starting: <b>January 1, 2007</b>	Period Ending: <b>Sept 30, 2008</b>		
Ending Date: <b>December 31, 2008</b>			

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
<b>Phase I - Literature Search</b>	<b>5</b>	<b>50</b>	<b>100</b>	<b>5</b>
<b>Task 1: Literature Search</b>	12	100	100	12
<b>Task 2: Assemble a technical panel composed of representatives from various agencies</b>	12	100	100	12
<b>Task 3: Make an inventory of future projects and determining the impact to impervious surface within watersheds</b>	12	100	100	12
<b>Task 4: Investigate water quality mitigation/banking/retrofit sites along State owned roadways within local watershed area</b>	8			
<b>Task 5: Identifying potential mitigation areas and retrofitting those with stormwater enhancements. Propose a methodology to plan, analyze and track improvements and banking credits</b>	8			
<b>Task 6: Select a specific mitigation/Bank location for the study. The feasibility evaluation will consider ROW, environmental constraints, watershed characteristics, and drainage data. List all environmental constraints, recommend BMP solution and cost estimates</b>	12			
<b>Task 7: Propose a tracking mitigation program to offset future program needs</b>	8			
<b>Task 8: Prepare Final Report documenting the finding of the research</b>	18			
<b>Implementation</b>	5			
<b>TOTAL</b>	<b>100%</b>		<b>400%</b>	<b>41%</b>

1. Progress this quarter by task: We could not make any further progress during this quarter because of difficulty in scheduling meeting with NJDOT staff to get data on project impacts. Now, we have started meetings with relevant staff and expect to make progress on Task 4 and 5 in next quarter.

2. Proposed activities for next quarter by task: **In the next quarter, Tasks 4 and 5 will be finished completely.**

3. List of deliverables provided in this quarter by task (product date): **Technical memorandum of Tasks 1, 2 and 3 to be submitted.**

4. Progress on Implementation and Training Activities: **None**

5. Problems/Proposed Solutions: **None**

6. Budget Summary: **Not available yet.**

Total Project Budget(# of years)	<b><i>NJDOT: \$310,000 UTRC: \$80,002 CCNY: \$9,358 No. of Years: 2</i></b>
Total Project Expenditure to date	<b>\$167,949</b>
% of Total Project Budget Expended	<b>42.05%</b>
Task Order Number/Study Number:	<b>Task Order # 30</b>
Current Task Order Budget (# of years)	
Actual Expenditure to date against current task order	
% of current task order budget expended	%